ISSN (Online):3048-5088

International Journal of Advancement and Innovation in Technology and Research (IJAITR)

Volume 3, Issue 1, (Jan-Jun) 2026

Digital Mental Health Support System: Arogya

Riya Dhakad
Department of CSE (Cyber Security), AITR
Indore, India
riyadhakad230581@acropolis.in

Ankita Goswami
Department of CSE (Cyber Security), AITR
Indore, India
ankitagoswami230569@acropolis.in

Ananya Sharma
Department of CSE (Cyber Security), AITR
Indore, India
ananyasharma231341@acropolis.in

Jahanvi Patidar
Department of CSE (Cyber Security), AITR
Indore, India
jahanvipatidar231044@acropolis.in

Nidhi Nigam
Department of CSIT, AITR
Indore, India
nidhinigam@acropolis.in

Sweta Gupta
Department of CSIT, AITR
Indore, India
swetagupta@acropolis.in

[1]***Abstract*—Mental health issues such as anxiety, depression, and stress are increasingly common among rural students. However, social stigma and limited access to professional help often discourage them from seeking support. This paper presents Arogya, a digital solution designed to provide confidential, accessible, and continuous mental health support through an AI-enabled mobile application. The proposed system integrates screening tools such as PHQ-9, GAD-7, and GHQ-12 to evaluate mental health conditions and leverages a Smart Moderator for seamless connectivity between students and mental health professionals. The platform ensures anonymity, 24/7 availability, and flexibility, thereby bridging the gap between urban and rural mental health support systems.**

***Index Terms*— Digital mental health, PHQ-9, GAD-7, GHQ-12, AI moderator, teletherapy, student well-being, Counsellor, Arogya**

I. INTRODUCTION

Mental health challenges among college students have become a serious concern in recent years. With increasing academic pressure, competitive environments, and lifestyle changes, more students are struggling with issues such as anxiety, depression, burnout, sleep disturbances, stress, and social isolation. These problems not only affect their emotional well-being but also impact their academic performance, interpersonal relationships, and overall quality of life. For some, untreated mental health issues can lead to a loss of motivation, poor grades, withdrawal from social life, or even long-term psychological problems.

The situation is even more challenging for undergraduate and college attending rural and semi-urban students.[1] Compared to their counterparts in urban institutions, they face deeper challenges in getting proper mental health care due to limited resources and awareness. The main issues can be categorized into three areas:

Availability: Most rural colleges do not have trained psychologists, counselors, or mental health professionals on campus. Even when such services exist, the number of professionals is too low to meet the demand. This shortage means that students often have no one to approach when required.

Accessibility: For many students, even when professional help is available, reaching it is difficult. Mental health centres or clinics may be located far from where students live or study, and transportation may not always be available. Financial limitations may also prevent them from getting private counselling. In addition, poor internet connectivity in rural areas makes it hard to use online counselling or teletherapy platforms effectively.

Stigma-free delivery: Social stigma around mental health remains one of the biggest barriers in smaller towns and

villages. Many students worry about being judged, misunderstood, or labelled “weak” if they talk about their mental health. This fear often leads to silence — they keep their feelings hidden instead of asking for help. Families and communities sometimes lack awareness about mental health, which adds to the problem.

Because of these challenges, students in rural and semi-urban settings often suffer in silence. Minor stress or anxiety can gradually develop into serious problems like depression or chronic stress. The lack of timely support may result in:

- Decline in academic performance and concentration
- Loss of confidence and motivation
- Sleep disturbances and physical health issues
- Withdrawal from social and extracurricular activities
- Increased risk of substance use or self-harm in extreme cases

So Arogya is a digital solution created to make mental health support easier and more private for such students. It is a mobile app that uses artificial intelligence (AI) to connect students with mental health experts and provide help anytime, anywhere. The app lets users check their mental health using simple questionnaires like PHQ-9 for depression, GAD-7 for anxiety, and GHQ-12 for general stress. These tools help detect if someone might need support or professional advice.
The most helpful part of Arogya is its Smart Moderator [3][2], an AI assistant that guides users, answers basic questions, and connects them to counselors when needed. It works all day and ensures that users stay anonymous and safe, so they can open up without fear of judgment. Because it is available in local languages and works on mobile phones, it is especially suitable for students in rural areas who may not have easy access to mental health care.

Overall, Arogya aims to bridge the gap between rural and urban mental health services. It encourages students to understand and care for their mental well-being, helps reduce stigma, and ensures that support is available anytime they need it.

II. LITERATURE REVIEW

The online mental health environment has witnessed substantial growth in recent times, with many platforms arising to cater to the growing need for accessible psychological care services. This subsection offers a critical review of current digital mental health platforms, assessing their functionalities, drawbacks, and usability across different demographics, specifically students in rural and urban settings.

A. AI-powered Conversational Platforms

Wysa is a monumental step in AI-based mental health care, applying conversational AI to deliver introductory psychological care. The program interacts with the user by means of chatbot-based therapeutic conversations and coping mechanisms. Nevertheless, its potential is limited by a number of factors, such as the absence of localized psychological incorporation, which decreases cultural sensitivity and contextual applicability. Further, its low flexibility for rural areas inhibits accessibility by remote consumers, and the limited scope of focusing on initial guidance limits its function in overall mental health management.[8]

B. Online Counselling Platforms

Yourdost, an Indian online mental health platform, has been designed to meet the particular demands of local users. It provides online counselling with a focus on accessibility in the Indian context. In spite of its appropriateness, some limitations remain, such as very few anonymity features that might dissuade users who need confidential services, little flexibility for rural students, and low customization for multicultural and geographical contexts.[10]

C. International Teletherapy Solutions

Talkspace has gained significant traction in the international teletherapy market by linking consumers with licensed mental health professionals. Strengths of the platform include its validated therapist network, user-therapist matching processes, and proven therapeutic efficacy. Its strict cost structure, however, is a financial deterrent for students, and its lack of extensive regional localization and student-focused features decreases its utility for the intended audience.

D. Government-initiated mental health services

Telemanas, launched by the Ministry of Health and Family Welfare, marks the state’s commitment towards making mental health care accessible. It offers 24×7 phone-based mental health services supported by national infrastructure and dependability. However, the lack of ai-powered chatbot interactivity limits user interaction, while poor public awareness and resource unavailability in remote regions affect utilization and quality of services.[11]

E. Commercial mental health platforms

Mindpeers provides an integrated digital mental health platform with online therapy, counselling, and self-help resources. Among its services are bundled therapy sessions, psychological tests, and learning materials. Nevertheless,

there are still accessibility issues because of the lack of free screening and the mostly paid model, which generates economic disparities for rural and student communities.

Gap analysis

The comparison of current digital mental health solutions reveals a number of common issues regarding accessibility and inclusiveness. The majority of today's solutions display urban-bias design, financial exclusions, and poor adjustment to rural settings. Additionally, technology and functionality deficits remain, such as:

- Lack of embedded psychological screening instruments
- Limited ai-based personalization and moderation
- Inability to include culturally and geographically sensitive therapist matching systems
- Privacy and anonymity issues additionally restrict user trust, since most platforms ask for a lot of personal information without enough openness or control levels.[5][4]

III. Proposed solution

To address these gaps that have been noticed, the proposed solution framework of this research seeks to provide an inclusive, secure, and adaptive system for mental health support. The framework focuses on three pillars:

1)Improved accessibility: the platform is conceived with a view to providing geographic coverage in rural and urban areas, economic accessibility for students, and technological flexibility among users of different digital literacy levels.

2)Ai-driven personalization: built-in screening tools provide for a thorough mental health evaluation, while smart matching algorithms enable culturally and geographically informed psychologist suggestions. User profile-based and context-driven personalized interventions are created.

3)The platform prioritizes anonymous user engagement, uses enhanced encryption for data security, and includes open privacy policies to create trust and user trust.[5][4][1]

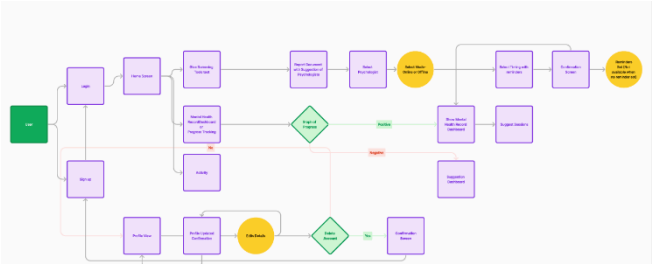

Fig1: Flow of the application

This flowchart illustrates the user flow of a mobile app used to track mental health. It starts with Login or Signup, after which a user is able to view the Home Screen. From here, the user can either go through the Screening Test or utilize different tools to evaluate mental health. According to the outcome, the app leads the user to a Mental Health Record Dashboard — in case of negative results, it reveals progress graphs and recommendations for correction; in case of positive results, it goes on to choices of choosing a psychologist, deciding on online or offline sessions, and fixing timings with reminders. The app also includes features for monitoring progress, viewing reports along with psychologist recommendations, and reminders for scheduled sessions. Furthermore, users can edit and view their profile, delete or update their account, and receive confirmation screens following every primary action. In general, the flowchart illustrates an entire and ordered process for handling mental health activities, following one's progress, and accessing professionals via the application

IV. METHODOLOGY

Research Design

The study adopts a mixed-methods research design, combining both quantitative and qualitative approaches to obtain a comprehensive understanding of how the Arogya mobile application affects the mental health and well-being of college students in rural and semi-urban settings. A mixed-methods design is appropriate because mental health is a complex issue influenced by both measurable factors (such as anxiety or depression scores) and subjective experiences (such as perceived stigma and usability of digital tools). The quantitative part will involve using well-known mental health questionnaires like PHQ-9 for depression, GAD-7 for anxiety, and GHQ-12 for general stress. These tests will be taken by students both before and after using the app to see if there is any change. The qualitative part will include interviews and group discussions, where students can openly share their experiences with the app, the challenges they face in seeking help, and how Arogya made a difference for them.

Data Collection Methods

Data collection will be carried out through a combination of surveys, app analytics, and interviews. Structured surveys will be administered to students to assess their mental health status using standardized psychological tools such as the Patient Health Questionnaire-9 (PHQ-9) for depression, the Generalized Anxiety Disorder-7 (GAD-7) for anxiety, and the General Health Questionnaire-12 (GHQ-12) for general mental distress. These instruments are well-validated and suitable for screening mental health issues among college populations. In addition to these surveys, the Arogya app

will automatically collect anonymous usage data, including frequency of logins, duration of sessions, and interactions with the Smart Moderator or counselors. This data will help identify patterns of engagement and the features most beneficial to students. To gain deeper insight into students' experiences, semi-structured interviews and focus group discussions will be conducted with a selected group of participants. These qualitative methods will help uncover emotional, social, and cultural dimensions that cannot be captured through surveys alone, such as stigma, accessibility challenges, and attitudes toward AI-based mental health tools.

Tools, Materials, and Procedures used

The primary research tool in this study is the Arogya mobile application, which serves both as an intervention and a data collection platform. It contains built-in mental health screening questionnaires (PHQ-9, GAD-7, GHQ-12) and an AI-powered Smart Moderator that guides users through self-assessment and connects them to professional counsellors when needed. The app is available in multiple local languages to accommodate linguistic diversity in rural and semi-urban regions.

Data Analysis Techniques

Data analysis will involve both quantitative and qualitative methods. Quantitative data from pre- and post-test surveys will be analyzed using statistical software such as SPSS or R. Descriptive statistics will be used to summarize demographic characteristics and baseline mental health scores. Inferential statistics, including paired sample t-tests or ANOVA, will be applied to measure the significance of changes in PHQ-9, GAD-7, and GHQ-12 scores before and after using the Arogya app. Correlation and regression analyses will also be conducted to determine the relationship between app usage frequency and improvements in mental health outcomes. Where applicable, effect sizes will be calculated to estimate the magnitude of change produced by the intervention.

The combined analysis will help determine not only whether Arogya improves mental health outcomes but also how and why it does so within the cultural and logistical realities of rural and semi-urban student populations.

Table 1:Study of Tools

Tool	**Target**	**Student psychometrics and notes**
PHQ-9	Depression	Validated in adolescent and student samples with good reliability (Omega α ≈0.87); used effectively in school settings as a brief screen [1]
GAD-7	Anxiety	Demonstrated reliability in adolescent samples (α ≈0.90); recommended as brief anxiety screen though cut-offs may require student-specific calibration [1]
GHQ-12	General distress	Shown to detect depressive/anxiety disorders in high school students with AUC ≈0.78 and suggested thresholds by gender; useful as broad distress screener

In summary, this methodology combines quantitative rigour with qualitative depth to assess the effectiveness of the Arogya digital mental health platform among college students in rural and semi-urban areas. By measuring psychological improvements, analyzing engagement data, and exploring user experiences, the research seeks to provide a holistic understanding of how technology can bridge the mental health care gap. The mixed-methods design ensures that both measurable outcomes and lived experiences inform conclusions, ultimately contributing to strategies that promote accessible, stigma-free mental health support for underserved student populations.

V. IMPLEMENTATION & RESULTS

The system architecture of Arogya, the Digital Mental Health Support Application as a whole, is intended to facilitate seamless interaction among users, the backend server, and the team of psychologists in a manner that respects privacy, accessibility, and real-time support. The system begins with the login of a user (instructor, visitor, or member of an institution) into the Android application using a secure login procedure. This secures all users in a way that allows them to access the platform anonymously and securely.

After authentication, the user communicates with the AI-driven chatbot that offers multilingual access and empathetic responses. The chatbot talks to the user through conversation, answers their questions, and recommends suitable activities like breathing exercises, relaxation sounds, guided meditation, or microlearning podcasts. This effectively enables students to cope with stress, anxiety, and emotional imbalance using self-help strategies.

The central features of the application are three primary screening instruments—PHQ-9, GAD-7, and GHQ-12—to screen for depression, anxiety, and overall psychological distress, respectively. Once a user fills in a screening tool, the system will automatically compute the score that will determine the user's mental health status. The report is then generated based on the score to ascertain if professional advice is required.

When the system detects the need for guidance, the Smart Moderator module enables the interaction between the user and the group of psychologists. The system is linked to certified psychologists via a server–database communication using MySQL as the database for data storage and retrieval. All requests (e.g., screening information, responses from chatbots, and scheduling details) are processed by the backend server and communicate with external services such as AWS or Gmail APIs for reminders and scheduling.

Once the user is matched with the psychologist, the platform provides an appointment booking option, where users may select the date and time slot according to their own choice. This provides flexibility and ease of use for both students and counselors. The system also includes community support and customized recommendations to provide ongoing care and emotional well-being.

On the whole, this flow provides an uninterrupted experience—from anonymous login to AI-supported emotional support, mental health screening, professional counselling, and feedback. The combination of AI, MySQL, and multilingual support makes the platform scalable, reliable, and accessible to students in rural and urban areas.

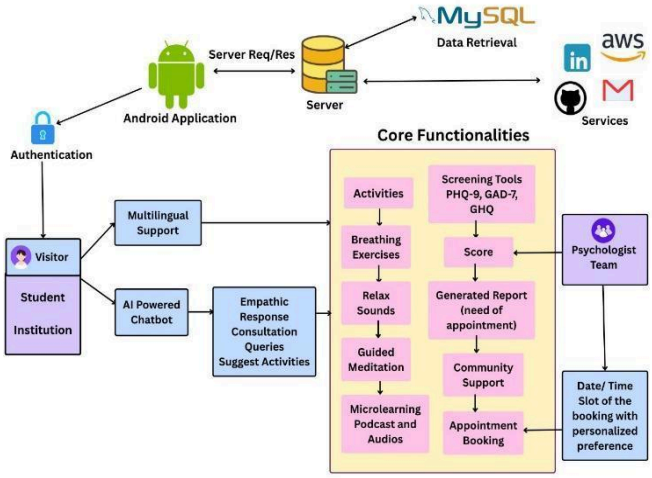

Fig 2: Working behind the application.

VI. CONCLUSION

Mental health problems such as stress, anxiety, and depression are becoming very common among college students today. These issues are even more serious in rural and semi-urban areas where students have limited access to counsellors, poor awareness, and fear of social judgment.

Arogya was developed to solve these problems by offering a digital, private, and affordable mental health solution. It is a mobile app that uses Artificial Intelligence (AI) to help students check their mental health, talk to an AI-based assistant, and connect with trained counselors when needed.

The app is built with several useful features that make it special:

- Anonymity: Students can use the app without revealing their identity, which helps them feel safe and open up without fear of being judged.
- Confidentiality: All personal information and conversations are kept private and secure.
- 24/7 Availability: The Smart Moderator AI is available at all times, so users can seek help anytime, even late at night or during holidays.
- Flexibility: Students can use the app anytime, anywhere, through their mobile phones, even from remote areas.
- Local Language Support: Arogya works in regional languages, making it easy to understand and use.

By offering privacy, convenience, and constant support, Arogya helps students take care of their mental health without hesitation. It bridges the gap between rural and urban areas, promotes awareness, and encourages students to seek help early. Ultimately, Arogya aims to build a healthier, more confident, and emotionally strong student community.

VII. REFERENCES

[1] Roy, S., Biswas, A. K., & Sharma, M. (2025). Stress, Anxiety, and Depression as Psychological Distress Among College and Undergraduate Students: A Scoping Review of Reviews Guided by the Socio-Ecological Model. *Healthcare*, *13*(16), 1948. https://doi.org/10.3390/healthcare13161948.

[2] Konadu, B. O., & Kusi, E. (2025). AI chatbots and students' mental health support: An efficacy review. *American Journal of Education and Learning*, *10*(2), 207-225.

[3] Vidya, S., Swamy, N., & Lalitha, H. (2024, November). Leveraging Machine Learning Algorithms for Depression Prediction in College Students Using PHQ-9 Scores. In *2024 IEEE 6th PhD Colloquium on Emerging Domain Innovation and Technology for Society (PhD EDITS)* (pp. 1-2). IEEE.

[4] Abdulkadir, A. O., & Dakasku, M. (2025). Transforming Counselling Services Through Artificial Intelligence In Nigerian Schools: Innovations, Challenges And Future Directions.

[5] Aziz, A., Emon, M. M. H., Tasnim, Z., Aziz, N., Rahman, M. A., & Hamid, A. B. A. (2026). Conversational AI for Student Well-Being: Transforming Mental Health Support in Education. In *Enhancing Student Support and Learning Through Conversational AI* (pp. 61-94). IGI Global Scientific Publishing.

[6] Limone, P., & Toto, G. A. (2022). Factors that predispose undergraduates to mental issues: A cumulative literature review for future research perspectives. *Frontiers in public health*, *10*, 831349.

[7] "Designing mobile applications to support mental health interventions", doi: 10.4018/978-1-59904-871-0.CH038.

[8] Wysa Mental Health App. [Online].

[9] World Health Organization (WHO). "Mental health of students."

[10] Your Dost, Indian Mental Health program

[11] TeleMANAS, Government-Initiated Mental Health Services